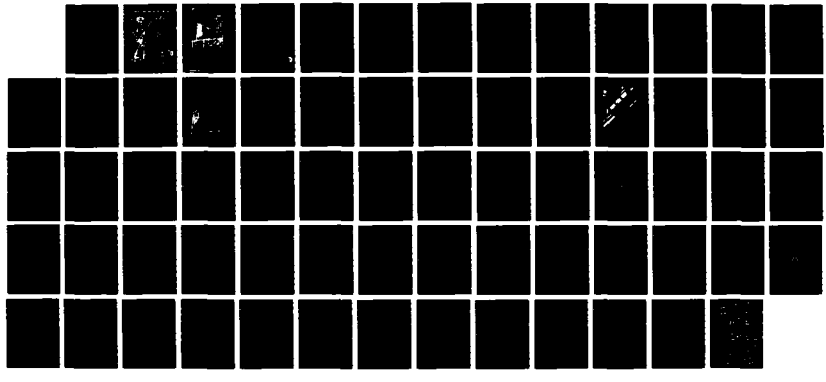
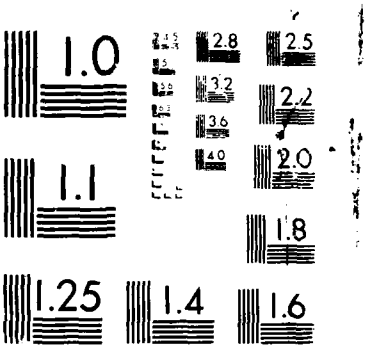
AD-A195 271 INSTALLATION RESTORATION PROGRAM PHASE 1 RECORD SEARCH 1/1
FOR THE 106TH AERO.. (U) HAZARDOUS MATERIALS TECHNICAL
CENTER ROCKVILLE MD JUL 87 DLA900-82-C-4426

UNCLASSIFIED F/G 24/3 NL



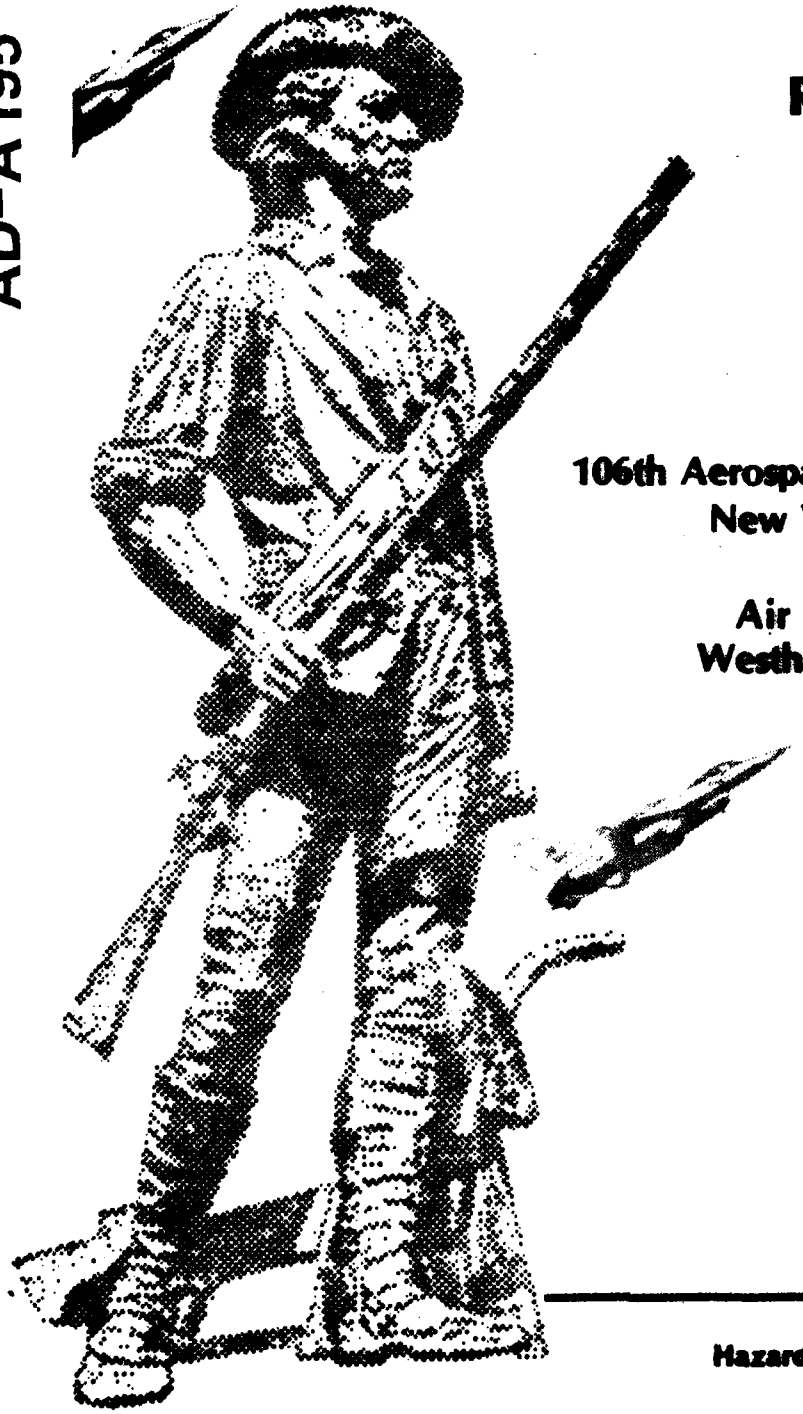


MICROCOPY RESOLUTION TEST CHA
NATIONAL BUREAU OF STANDARDS-1963

DTIC FILE COPY

AD-A195 271

INSTALLATION RESTORATION PROGRAM



Phase I
Records Search

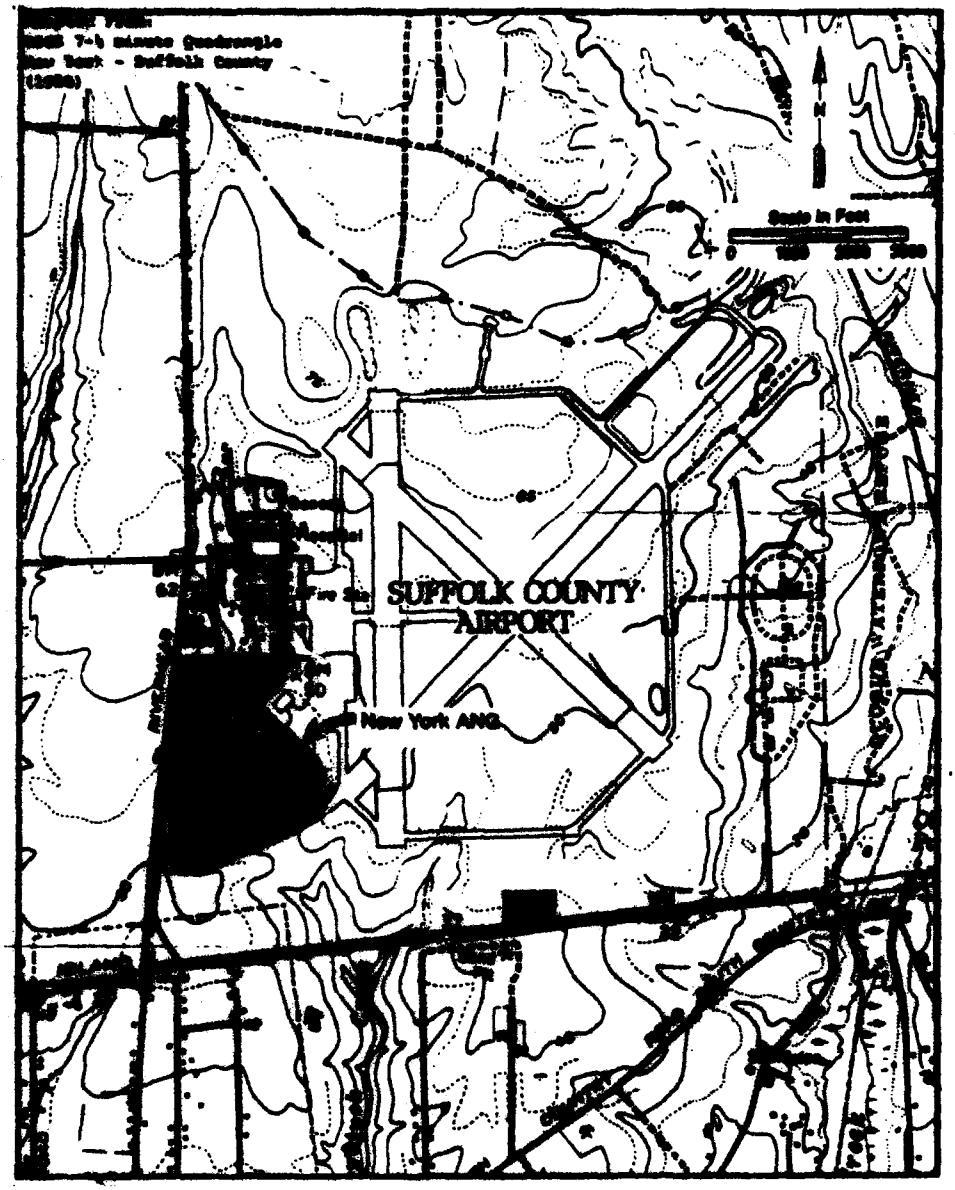
106th Aerospace Rescue and Recovery Group
New York Air National Guard
Suffolk County
Air National Guard Base
Westhampton Beach, New York

DTIC
ELECTE
MAY 1 6 1988
S D
E

Hazardous Materials Technical Center

July 1987

This document has been approved for public release and sale; its distribution is unlimited.



This report has been prepared for the National Guard Bureau, Washington, DC, by the Hazardous Materials Technical Center for the purpose of aiding in the implementation of the Air Force Installation Restoration Program.

DISTRIBUTION: Approved for public release; distribution is unlimited.

INSTALLATION RESTORATION PROGRAM
PHASE I - RECORDS SEARCH FOR

106th AEROSPACE RESCUE AND RECOVERY GROUP
NEW YORK AIR NATIONAL GUARD
SUFFOLK COUNTY AIR NATIONAL GUARD BASE
WESTHAMPTON BEACH, NEW YORK

July, 1987

Prepared for

National Guard Bureau
Andrews Air Force Base, Maryland 20331

Prepared by

The Hazardous Materials Technical Center
The Dynamac Building
11140 Rockville Pike
Rockville, Maryland 20852

Contract No. DLA 900-82-C-4426

Accession For
NTIS GRA&I X
DTIC TAB ☐
Unannounced ☐
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A-1

DTIC ELECTE MAY 16 1988 S D E

This document has been approved for public release and sale; its distribution is unlimited.

TABLE OF CONTENTS

		Page
	EXECUTIVE SUMMARY	ES-1
I.	INTRODUCTION	I-1
	A. Background	I-1
	B. Purpose	I-1
	C. Scope	I-2
	D. Methodology	I-3
II.	INSTALLATION DESCRIPTION	II-1
	A. Location	II-1
	B. Organization and History	II-1
III.	ENVIRONMENTAL SETTING	III-1
	A. Meteorology	III-1
	B. Geology	III-1
	C. Hydrology	III-3
IV.	SITE EVALUATIONS	IV-1
	A. Activity Review	IV-1
	B. Disposal/Spill Site Identification, Evaluation, and Hazard Assessment	IV-1
	C. Critical Habitats/Endangered Threatened Species	IV-8
	D. Other Pertinent Facts	IV-8
V.	CONCLUSIONS	V-1
VI.	RECOMMENDATIONS	VI-1

TABLE OF CONTENTS (continued)

	Page
GLOSSARY OF TERMS	GL-1
BIBLIOGRAPHY	BI-1
APPENDIX A - Resumes of HMTC Search Team Members	A-1
APPENDIX B - Interviewee Information	B-1
APPENDIX C - Outside Agency Contact List	C-1
APPENDIX D - USAF Hazard Assessment Rating Methodology	D-1
APPENDIX E - Site Hazardous Assessment Rating Forms	E-1

LIST OF FIGURES

1.	Records Search Methodology Flow Chart	I-4
2.	Site Map of New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York	II-2
3.	Locations of Rated Sites at New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York	IV-3

LIST OF TABLES

1.	Hazardous Waste Disposal Summary: New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York	IV-2
2.	Site Hazard Assessment Scores: New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York	IV-4

EXECUTIVE SUMMARY

A. INTRODUCTION

The Hazardous Materials Technical Center (HMTC) was retained in January, 1986 to conduct the Installation Restoration Program (IRP) Phase I - Records Search of the 106th Aerospace Rescue and Recovery Group (ARRG), New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York, hereinafter referred to as the Base, under Contract No. DLA 900-82-C-4426 (Records Search). The Records Search included

- o an onsite visit, including interviews with nine base employees conducted by HMTC personnel on 27-29 January 1986;
- o the acquisition and analysis of pertinent information and records on hazardous materials use and hazardous waste generation and disposal at the base;
- o the acquisition and analysis of available geologic, hydrologic, meteorologic, and environmental data from pertinent Federal, State, and local agencies; and
- o the identification of sites on the base which may be potentially contaminated with hazardous materials.

B. MAJOR FINDINGS

The major operations of the 106th ARRG that have used and disposed of hazardous materials/hazardous wastes include aircraft maintenance; aerospace ground equipment (AGE) maintenance; ground vehicle maintenance; petroleum, oil, and lubricant (POL) management and distribution; and fire department training. The operations involve such activities as corrosion control, nondestructive inspection (NDI), fuel cell maintenance, engine maintenance, and pneudraulics. Varying quantities of waste oils, recovered fuels, spent cleaners, strippers, and solvents were generated and disposed of by these activities.

The hazardous waste materials generated by these operations are being dis-

posed of by the Defense Reutilization and Marketing Office (DRMO). Previously, the Air Force disposed of the wastes by burning them at the Fire Training Area (FTA). The FTA is not examined in this Phase I study because Phase II/IVA efforts are already underway for this site.

Interviews with nine base personnel and a field survey resulted in the identification of five disposal and/or spill sites at the base and one at the county owned POL Tank Farm. The POL Tank Farm was investigated because the Air National Guard (ANG) owns and operates some of the storage tanks at the facility, and some fuel spillage has been reported at the site. Qualification studies performed on the contaminants found at the POL Tank Farm indicate that the predominant contaminant is commercially used jet fuel (jet-A fuel). These studies were performed by the U.S. Air Force Occupational and Environmental Health Laboratory, and an independent laboratory, Cambridge Analytical Associates.

The five sites at the base, and the site at the POL Tank Farm that are potentially contaminated with hazardous materials are:

Site No. 1 - AVGAS Spill Site
Site No. 2 - Former Hazardous Waste Storage Area
Site No. 3 - Current Waste Storage Facility
Site No. 4 - Aircraft Refueling Apron
Site No. 5 - Southwest Storm Drainage Ditch
Site No. 6 - POL Tank Farm

Site Nos. 2, 3, and 5 exhibited discolored soils and/or vegetative stress at the time of the site visit.

C. CONCLUSIONS

The six identified potentially contaminated hazardous waste sites have been further evaluated and given a Hazard Assessment Score (HAS) utilizing the Air Force Hazard Assessment Rating Methodology (HARM):

Site No. 1 - AVGAS Spill Site (HAS-54)

Up to 5,000 gallons of AVGAS was spilled at this site when a parked refueler was accidentally emptied. No fuel recovery was accomplished.

Site No. 2 - Former Hazardous Waste Storage Area (HAS-48)

Less than 500 gallons of shop wastes, including PD-680 and recovered fuel and oils, are estimated to have accumulated at this site by routine drippings and seepage while this area was in use. Soil contamination is visible.

Site No. 3 - Current Waste Storage Facility (HAS-44)

Spillage of less than 1,000 gallons of solvents, POL products and strippers is estimated to have accumulated at this site. Soil contamination is visible.

Site No. 4 - Aircraft Refueling Apron (HAS-48)

It is estimated that for a period of about 15 years, hydraulic oil and trichloroethylene have been spilled at this site at the approximate rate of 50 gallons/year and 30 gallons/year, respectively. No recovery was ever made.

Site No. 5 - Southwest Storm Drainage Ditch (HAS-44)

Most of the storm runoff from the base, especially from around the aircraft and helicopter maintenance areas, drain into the ditch. It is unlikely that more than 500 gallons of hazardous waste material would have accumulated in the area. However, the more persistent wastes are most likely to accumulate; and

Site No. 6 - POL Tank Farm (HAS-69)

POL contamination has been confirmed at this site by the ANG and State of New York. Since both Suffolk County Airport and the Base operate POL storage facilities at the site, the source of all the contamination is unknown. Although qualification studies have indicated that predominate contamination at the site is jet A fuel, JP-4 is reported to have been spilled at this site.

It has been concluded that the potential for groundwater contamination and contaminant migration exists at all six sites.

D. RECOMMENDATIONS

Because of the potential for contaminant migration, initial investigative stages of the IRP Phase II/IVA are recommended for the six sites. The primary purposes of the subsequent investigations are:

1. To determine whether pollutants are present at each site or determine that no pollutants are present, and

2. To determine whether groundwater at each site has been contaminated, and if it has, give quantification with respect to contaminant concentrations, the boundary of the contaminant plume, and the rate of contaminant migration.

Site specific recommendations for further investigation include the following:

- Site No. 1 - Installation of monitoring wells and analysis of soil and groundwater samples to determine the presence of AVGAS. Samples should be analyzed for oil and grease (O&G) and volatile organic aromatics (VOA);

- Site No. 2 - Installation of monitoring wells and analysis of soil and groundwater samples for O&G, VOA, total organic carbon (TOC), total organic halogens (TOX), and heavy metals;

- Site No. 3 - Installation of monitoring wells and the analysis of soil and groundwater samples for O&G, VOA, TOC, TOX, and heavy metals;

- Site No. 4 - Installation of monitoring wells and analysis of soil and groundwater samples for O&G and VOA; and

- Site No. 5 - Installation of monitoring wells and analysis of soil and groundwater for samples for O&G, VOA, TOC, TOX, and heavy metals.

- Site No. 6 - POL contamination has been confirmed at this site. Subsequent IRP investigations should be undertaken to determine if a contaminant plume exists and if confirmed, the extent of migration.

I. INTRODUCTION

A. BACKGROUND

The 106th Aerospace Rescue and Recovery Group (ARRG) is located at the New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York, hereinafter referred to as the Base. The Air National Guard Base has been active since 1971, and over the years the types of military aircraft based and serviced there have varied. Past operations there have involved the use of hazardous materials and disposal of hazardous wastes. Because of the use of hazardous material and disposal of hazardous waste, the Air National Guard (ANG) has implemented its Installation Restoration Program (IRP). The IRP is a four-phased program consisting of the following:

Phase I - Records Search (Installation Assessment) - identify past spill or disposal sites posing a potential and/or actual hazard to public health or the environment.

Phase II/IVA - Site Characterization/Remedial Action Plan - acquiring data via field studies, for the confirmation and quantification of environmental contamination that may have an adverse impact on public health or the environment; preparing a Remedial Action Plan (RAP); and, if directed by the National Guard Bureau, preparing designs and specifications.

Phase III - Technology Base Development (if needed) - developing new technology for accomplishment of remediation.

Phase IVB - Implementation of Site Remedial Action.

B. PURPOSE

The purpose of this IRP Phase I - Records Search (hereinafter referred to as Records Search) is to identify and evaluate suspected problems associated with past hazardous waste handling procedures, disposal sites, and spill sites on the Base. The potential for migration of hazardous contaminants is evaluat-

ed by visiting the Base, reviewing existing environmental information, analyzing Base records concerning the use and generation of hazardous material/hazardous wastes, and conducting interviews with past and present Base personnel who are familiar with past hazardous materials management activities. Relevant information collected and analyzed as a part of the Records Search includes the history of the Base, with special emphasis on the history of the shop operations and their past hazardous materials/hazardous waste management procedures; the local geological, hydrological, and meterological conditions that may affect migration of contaminants; local land use, public utilities, and zoning requirements that affect the potentiality for exposure to contaminants, and the ecological settings that indicate environmentally sensitive habitats or evidence of environmental stress.

C. SCOPE

The scope of this Records Search is limited to spills, leaks, or disposal problems which occurred on the Base and the petroleum, oils, and lubricants (POL) storage facility, known as the POL Tank Farm, located at the Suffolk County Airport. The POL Tank Farm is owned by Suffolk County. However, since the ANG owns two underground and two aboveground tanks, and there have been reported spills by the ANG at this facility, it was decided that this Records Search should encompass this facility. The Records Search includes:

- o An onsite visit;
- o The acquisition of pertinent information and records on hazardous materials use and hazardous waste generation and disposal practices at the Base;
- o The acquisition of available geologic, hydrologic, meteorologic, landuse and zoning, critical habitat, and utility data from various Federal, New York State, and local agencies;
- o A review and analysis of all information obtained; and
- o Preparation of a report, to include recommendations for further actions.

The onsite visit, interviews with past and present personnel, and meetings with Federal, State, and local agency personnel were conducted during the peri-

od 27-29 January 1986. The HMTC Records Search effort was conducted by Mr. Timothy N. Gardner, Environmental Scientist (M.A., Environmental Biology, 1984), (Resume is included as Appendix A).

Individuals from the ANG who assisted in the Records Search include Mr. Arthur Lee, Environmental Engineer, ANGSC/DEV; Lt. Colonel Michael Washeleski, Bioenvironmental Engineer, ANGSC/SGB; and selected members of the 106th ARRG. The Point of Contact at the Base was Major Gerald Harris, Base Civil Engineer.

D. METHODOLOGY

A flow chart of the Records Search Methodology is presented in Figure 1. This Records Search Methodology, ensures a comprehensive collection and review of pertinent site specific information, and is utilized in the identification and assessment of potentially contaminated hazardous waste spill/disposal sites.

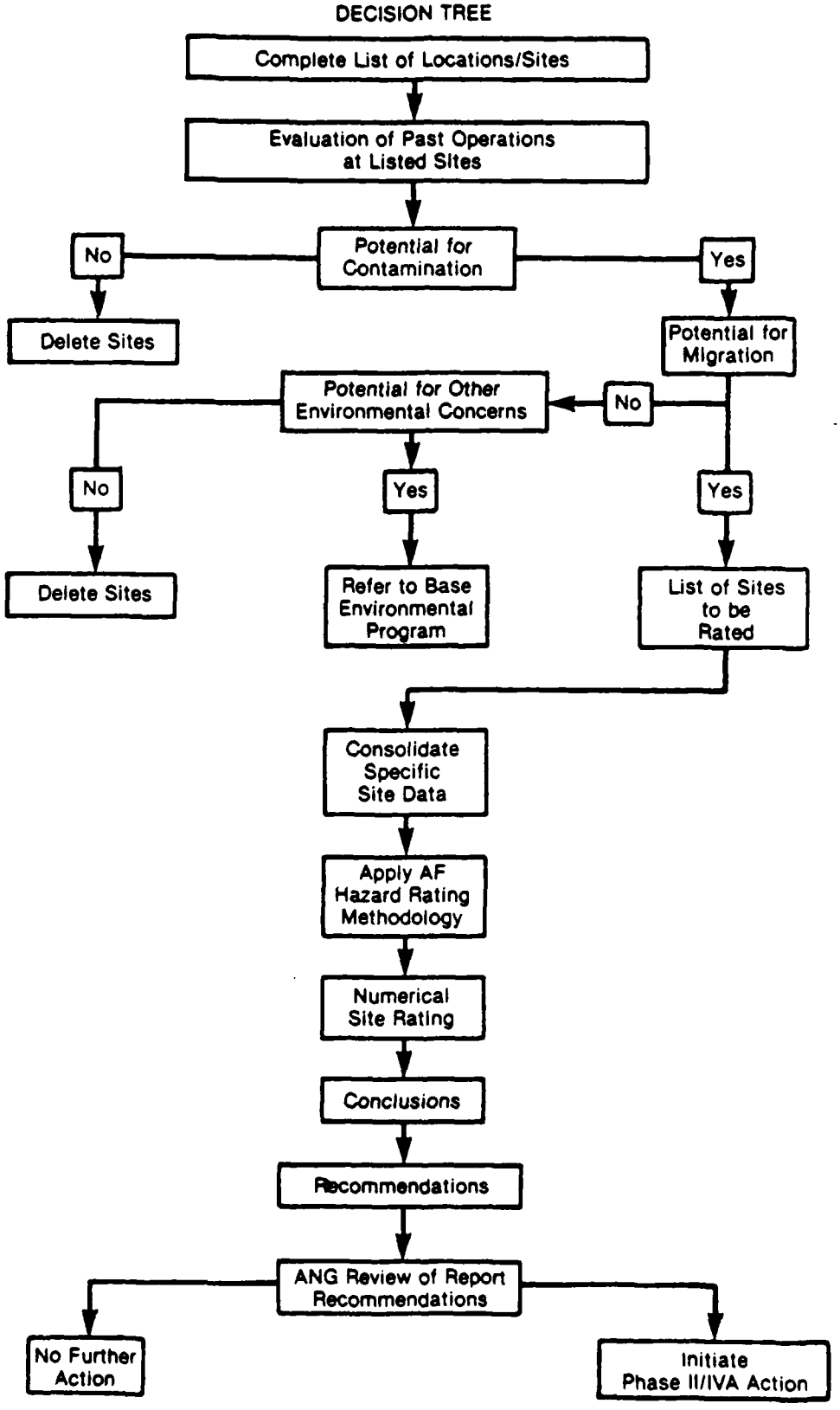
The Records Search began with a site visit to the Base to identify all shop operations or activities on the Base that may have utilized hazardous material or generated hazardous waste. Next, an evaluation of past and present hazardous materials/hazardous waste handling procedures at the identified locations was made to determine whether environmental contamination may have occurred. The evaluation of past hazardous materials/hazardous waste handling practices was facilitated by extensive interviews with nine past and present employees familiar with the various operating procedures at the Base. These interviews were also utilized to define the areas on the Base and POL Tank Farm where any waste materials (hazardous or nonhazardous), either intentionally or inadvertently, may have been used, spilled, stored, or disposed of, or released into the environment.

Appendix B lists the interviewee's principle areas of knowledge and their years of experience with the Base. Historic records contained in the Base files were collected and reviewed to supplement the information obtained from interviews. Using the information outlined above, a list of six past waste spill/disposal sites, five on the Base and one at the POL Tank Farm, were iden-

HMTC

PHASE I
INSTALLATION
RESTORATION PROGRAM

Figure 1.
Records Search Methodology Flow Chart.



tified for further evaluation. The Fire Training Area (FTA) was not included in this Records Search because IRP Phase II/IVA efforts are already underway for this FTA. A general survey tour of the identified spill/disposal sites, the Base, the POL Tank Farm, and the surrounding area was conducted to determine the presence of visible contamination and to help assess the potential for contaminant migration. Particular attention was given to locating nearby drainage ditches, surface water bodies, residences, and wells.

Detailed environmental data including geological, hydrological, meteorological, development (land use and zoning), was obtained from the agencies identified in Appendix C. Following a detailed analysis of all the information obtained, it was determined that the six identified sites were potentially contaminated with hazardous materials, and the potential for contaminant migration existed. The six sites were numerically scored utilizing the Air Force Hazard Assessment Rating Methodology (HARM). Recommendations for follow-up investigations on the six potentially contaminated sites were developed.

II. INSTALLATION DESCRIPTION

A. LOCATION

The 106th ARRG is located at Suffolk County Airport, formerly known as Suffolk County Air Force Base. The airport is located on Old Riverhead Road, approximately 2 miles north of Westhampton Beach, New York. The 106th occupies the area south of Cook Street on the west side of the airport. Figure 2 displays the area studied for this Phase I report.

B. ORGANIZATION AND HISTORY

In 1941, the U.S. Civil Aeronautics Authority began leasing parcels of land in Suffolk County for construction of an air base. They accumulated about 11,500 acres of land for the base. In May 1943, the base was activated for gunnery training. After World War II, the base was deactivated and was leased to the Arabian American Oil Company between 1948 and 1951.

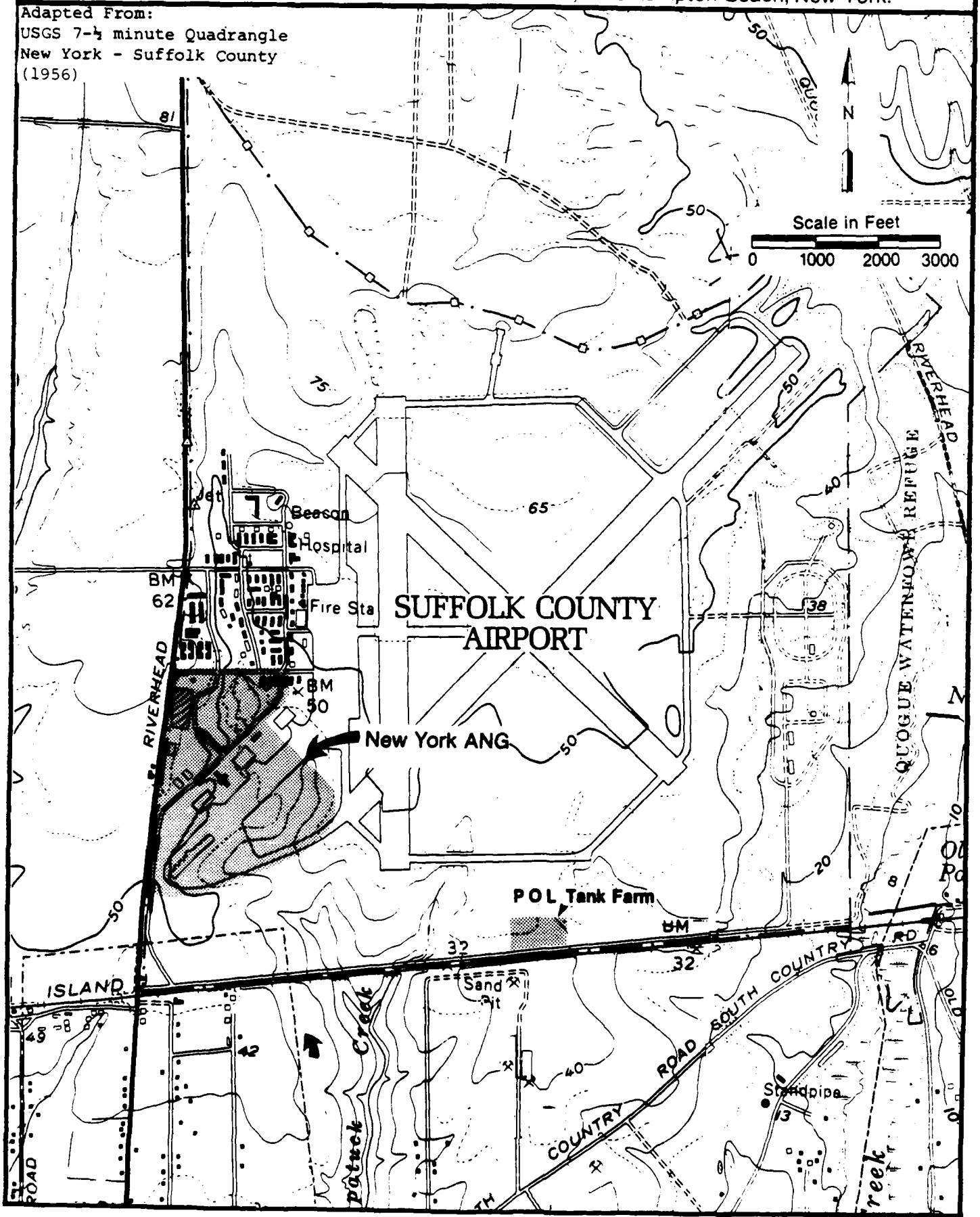
The base was reactivated in 1951 (as a result of the Korean War) and was occupied by various USAF and Air National Guard groups between 1951 and 1969. In 1969, the base again closed and the land was acquired by Suffolk County.

In 1971, the Air National Guard leased approximately 70 acres on the west side of the Airport. The ANG has maintained operations at Suffolk County Airport since 1971. The missions and types of aircraft have varied over the years, beginning with the arrival of KC-97 tankers in 1971. In December 1972, the KC-97s were replaced with F-102 fighter interceptors. The fighters left in 1975 and were replaced with HH-3 helicopters and HC-130/HC-130P fixed wing aircraft. The present mission of the 106th ARRG is aerospace rescue and recovery. The U.S. Coast Guard frequently coordinates with the 106th ARRG for rescue and recovery missions.

HMTC

Figure 2.

Site Map of New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York.



III. ENVIRONMENTAL SETTING

A. METEOROLOGY

Although greatly modified by the Atlantic Ocean, the climate of Suffolk County is humid, continental. The climate is dominated by continental influences because air masses and weather systems affecting Long Island have their origin principally over the land areas of North America. A maritime influence is also significant. Such characteristics of the climate as an extended period of freeze-free temperatures, a reduced range in both diurnal and annual temperature, and heavy precipitation in winter relative to that in summer are a result of the county's maritime exposure.

Suffolk County Airport has an annual average rainfall of approximately 44.5 inches of precipitation. By calculating net precipitation according to the method outlined in the Federal Register (47 FR 31224, July 16, 1982), a net precipitation value of 14.5 inches per year is obtained. Rainfall intensity based on 1 year, 24-hour rainfall is 2.75 inches (calculated according to 47 FR 31235, July 16, 1982, Figure 8).

B. GEOLOGY

The following discussion of the geology of Suffolk County, including soil descriptions, is taken from the U.S. Department of Agriculture Soil Survey of Suffolk County, New York 1975.

The bedrock under Suffolk County varies in depth from 400 feet below sea level at Lloyd Neck to 2,200 feet below sea level in the south-central part of the county. The bedrock is overlain by Cretaceous Period sediment called the Raritan Formation and the Magothy Formation. The Raritan Formation, which rests on the bedrock, is subdivided into the Lloyd Sand Member and the clay member, which is the uppermost part. The Raritan Formation is below sea level. The Magothy Formation outcrops at only a few locations on Long Island, and most of these are in Nassau County.

Several glaciers have produced the topographic features of Suffolk County as it is known today. The glacier responsible for shaping the area in the vicinity of Suffolk County Airport is known as the Ronkonkoma Sheet. As this sheet melted, meltwater streams flowed from the glaciers and carried a large volume of sand and gravel further south. This sand and gravel was deposited in a more or less flat plain, developing what is known as an outwash plain.

The soils present at Base and the fuel storage facility are of three types. They are CuB, cut and fill land, gently sloping; Ur, urban land; and CpC, Carver and Plymouth sands, 3 to 15 percent slopes. A brief description of these soil types follows.

CuB: Areas of cut and fill land contain deep cuts in or near the sandy substratum of the soil or sandy fills of 28 inches or more. Generally, cuts are so deep or fills so thick that identification of soils by series is not possible. Slopes range from 1 to 8 percent.

Cut and fill land makes up at least 75 percent of this unit. Texture is dominantly loamy fine sand or coarser textured material throughout. The 25 percent that remains consists of areas of soils of the Carver, Haven, Plymouth, or Riverhead series.

Ur: Urban land consists of areas that are more than 80 percent covered by buildings and pavements. Examples are parking lots, business districts of larger villages, densely developed industrial parks, and airports. Examination and identification of the soils in these areas is impractical; but because of the location of Suffolk County Airport, it is thought that most of these soils would be of the Plymouth-Carver association.

CpC: Carver and Plymouth sands, 3 to 15 percent slopes are found mainly on rolling moraines; however, they are also on the side slopes of many drainage channels on the outwash plains. This unit can be made up entirely of Carver sand, entirely Plymouth sand, or of a combination of the two soils.

Generally included with this unit in mapping are areas of Plymouth loamy sand or loamy coarse sand that are very close to sand in texture. Also includ-

ed are small areas of Carver and Plymouth Sands, 0 to 3 percent slopes. Small areas of these soils on moraines are as much as 25 percent gravel throughout, especially along the crests of low ridges.

The permeability of the soil types described in this report is said to have a rate of > 4.44×10^{-3} cm/sec.

C. HYDROLOGY

1. Surface Water

The Base is not within the boundaries of a floodplain associated with 100-year frequency floods (Flood Insurance Rate Map for Village of Westhampton Beach, New York). Local drainage from the Base is predominantly to the south to a tributary of Aspatuck Creek. Storm drainage from the aircraft parking aprons and refueling apron flows to the tributary via storm drains and piping to the southern area of the Base, where the outflow empties into an open ditch (Southwest Storm Drainage Ditch).

The nearest bodies of surface water are Aspatuck Creek and Quantuck Creek to the south of the airport, and Old Ice Pond, off the southeast corner of the airport. All three bodies are approximately the same distance from the Base, about 1 mile.

2. Groundwater

In Suffolk County, almost all supplies of water for individual and municipal facilities are drawn from groundwater by drilled or driven wells. The supply of water draws its entire recharge from precipitation. Under present conditions of infiltration, groundwater recharge is estimated to be about 350 billion gallons of water annually (Warner, et. al., 1975).

The wells are supplied by three main aquifers; the Upper Pleistocene, the Magothy, and the Lloyd Sand member of the Raritan Formation. These aquifers are made up of sand and gravel and small amounts of silt and clay. This type of aquifer yields very large quantities of water with little pumping.

Most wells are driven into the Upper Pleistocene or Magothy Formations (Warner, et. al., 1975).

At the Base, there are no drinking water wells, but 15 groundwater monitoring wells had been installed in the vicinity of the POL Tank Farm. Nine other monitoring wells were installed in the vicinity of the Fire Training Area (FTA) on airport property located north-northeast of the POL Tank Farm. The depth to groundwater in these wells generally ranges from approximately 15 to 35 feet below ground surface. Well boring logs indicate that there are no lenses of clay material or other substances that would confine the shallow water table or alter its flow direction. After examining the available topographic, geologic, and hydrologic data, HMTC concluded that the direction of groundwater flow in the vicinity of the Base is probably the same as that of surface drainage, to the south, and that the direction of groundwater flow at the POL Tank Farm is also probably the same as surface flow in that area, to the west-southwest toward the tributary to Aspatuck Creek.

IV. SITE EVALUATION

A. ACTIVITY REVIEW

A review of Base records and interviews with past and present employees resulted in the identification of specific operations within each activity in which the majority of industrial chemicals are handled and hazardous wastes are generated. Table 1 summarizes the major operations associated with each activity, provides estimates of the quantities of waste currently being generated by these operations, and describes the past and present disposal routes for the wastes. If an operation is not listed in Table 1, then that operation has been determined on a best-estimate basis to produce negligible (less than 5 gallons per year) quantities of wastes requiring ultimate disposal. For example, small volumes of methyl ethyl ketone commonly evaporate after use, and therefore do not present a disposal problem. Conversely, if a particularly volatile compound is listed, then the quantity represents an estimate of the amount actually disposed of according to the method shown.

B. DISPOSAL/SPILL SITE IDENTIFICATION, EVALUATION, AND HAZARD ASSESSMENT

Interviews with nine Base personnel (Appendix B) and subsequent site inspections resulted in the identification of six waste disposal/spill sites, five on the Base, and one at the POL Tank Farm. It was determined that the six sites are potentially contaminated with a potential for contaminant migration; therefore, they should be further evaluated. The six sites were scored using HARM (Appendix D). Figure 3 illustrates the locations of the scored sites. The location of the POL Tank Farm in relation to the Base is shown on Figure 2. Copies of the completed Hazardous Assessment Rating Forms are found in Appendix E. Table 2 summarizes the Hazard Assessment Scores (HAS) for each of the scored sites.

Table 1. *Hazardous Waste Disposal Summary: New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York*

Shop Name	Building No.	Hazardous Waste/ Used Hazardous Material	Estimated Quantities (Gal./year)	Method of Treatment/Storage/Disposal 1971 — 1980 — 1986
Aircraft Maintenance	370,358,395	PD-680	120	CONTRACT — DRMO
		Recovered POL Products	350	CONTRACT — DRMO
		TCE	30	CONTRACT — DISCONTINUED USE 1973
		Battery Acid	25	NEUTR
		Carbon Cleaner "gunk"	10	DRY WELL — DISCONTINUED USE 1981
		Strippers (MEK,MIK)	50	CONTRACT — DRMO
		Synthetic Turbine Oil	180	CONTRACT — DRMO
Aerospace Ground Equipment Maintenance	276	Engine oil	400	CONTRACT — DRMO
		Hydraulic oil	50	CONTRACT — DRMO
		Paints/Strippers/ Thinners	20	CONTRACT — DRMO
		JP-4	50	CONTRACT — DRMO
Motor Pool	230	Engine Oil	150	CONTRACT — DRMO
		PD-680	50	CONTRACT — DRMO
		Battery Acid	20	CONTRACT — DRMO

CONTRACT - Disposed of by contractor
NEUTR - Neutralized and disposed of in sanitary sewer
DRMO - Disposed of by Defense Reutilization and Marketing Office

HMTC

Figure 3.

Locations of Rated Sites at New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York.

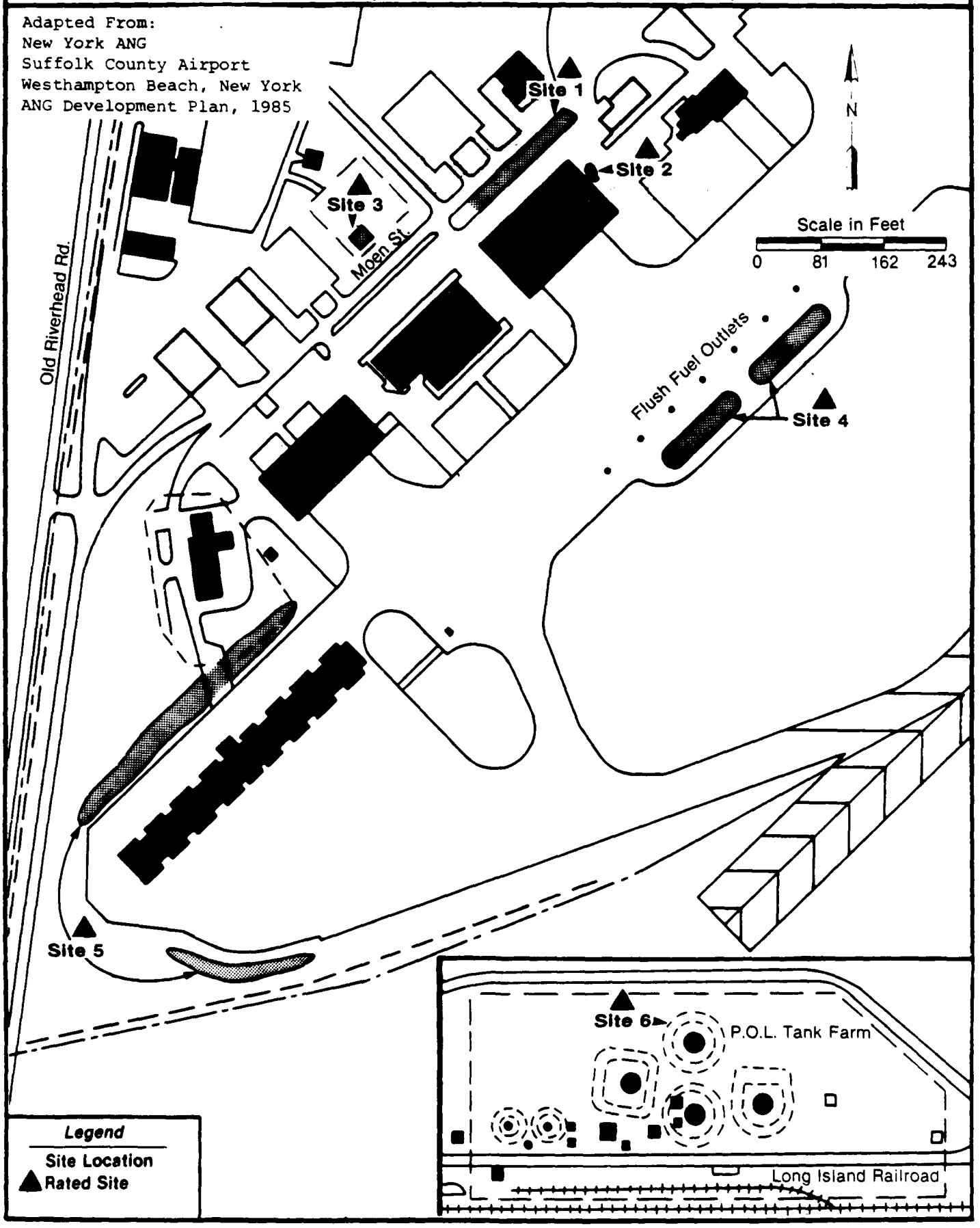


Table 2. Site Hazard Assessment Scores: New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York

Site Priority	Site Number	Site Description	Receptor	Waste Characteristics	Pathway	Waste Mgmt. Practices	Overall Score
1	6	POL Tank Farm	28	80	100	1.0	69
2	1	AVGAS Spill Site	28	80	54	1.0	54
3	4	Aircraft Refueling Apron	28	50	67	1.0	48
4	2	Former Hazardous Waste Storage Area	28	50	67	1.0	48
5	5	Southwest Storm Drainage Ditch	28	30	74	1.0	44
6	3	Current Waste Storage Facility	28	50	53	1.0	44

Site No. 1 - AVGAS Spill Site (HAS-54)

About 20 years ago, a spill of up to 5,000 gallons of AVGAS occurred at this site when a parked refueler was accidentally emptied on the paved lot area. The fuel flowed into the storm drainage ditch and was lost to evaporation and absorption. No recovery was accomplished. No visual evidence exists that would suggest environmental stress in the vicinity of this site. Due to the large volume of fuel spilled with no recovery, it was decided that HAS scoring and further evaluation of the site was necessary.

Site No. 2 - Former Hazardous Waste Storage Area (HAS-48)

This site is a former hazardous waste storage area. It consisted of an open area on gravel with no containment structures. The shop wastes that were stored here include PD-680, and recovered fuels and oils. Other than routine drippings and seepage, no spills have been noted at this site. However, during the site inspection, oily, discolored soil was observed. Reliable estimates of the amount of wastes spilled at this site do not exist. However, based on the area of observed contamination, HMTC estimated the total spillage to be less than 500 gallons. Since soil contamination is readily observable, further evaluation under IRP is recommended for the site.

Site No. 3 - Current Waste Storage Facility (HAS-44)

The current waste storage facility is Building No. 282. The building is in a state of disrepair with numerous holes in the steel roof, no doors or windows, and an open gravel floor. Drums were observed being stored both on their sides and upright, with accumulations of precipitation on the upright drums. Discolored gravel and soil was observed throughout the facility. No major spills have been recorded at this site. Due to the variety of the wastes stored there, including solvents, POL products, strippers, etc., and the presence of discolored soil, it was determined that further evaluation of the site would be necessary. Although no reliable estimate of the amount of wastes spilled at this site is available, HMTC, based on the visible evidence, has estimated the spillage to be small (less than 1,000 gallons).

Site No. 4 - Aircraft Refueling Apron (HAS-48)

During the personnel interviews it was learned that over the years, numerous POL and solvent spills have occurred on the aircraft refueling apron. Products known to have been spilled here, and respective quantities include hydraulic oil (50 gal/yr), trichloroethylene (30 gal/yr), and routine fuel drippings. It was noted that none of the spills were ever recovered, and some of the material may have flowed onto the grassy area adjacent to the refueling valve pits. The site inspection revealed no visual environmental stress; however, due to the nature of the wastes, and since the quantity of wastes washed onto this site would represent the accumulations of many years, it was thought that a HAS and further investigation of the site was appropriate.

Site No. 5 - Southwest Storm Drainage Ditch (HAS-44)

This site is an area where much of the storm runoff from the Base empties into an open ditch before flowing off the Base toward a tributary of Aspatuck Creek. Storm runoff is transported through a series of pipes and open ditches adjacent to the aircraft maintenance buildings, around the southwest end of Building No. 395 (helicopter maintenance), and empties from a headwall into the open ditch area, designated at Site No. 5. During the interviews, it was disclosed that an oily sheen had been observed in the ditch during occasional episodes of heavy precipitation. During the site visit, vegetative stress was observed in the ditch. Exact quantities of hazardous wastes entering the storm drainage system and flowing to Site No. 5 are not known. It is unlikely that more than 500 gallons of hazardous wates have accumulated in the drainage ditch area since 1971. However, since the more persistent wastes are more likely to accumulate in the open ditch area, a HAS has been determined and subsequent IRP analysis is recommended.

Site No. 6 POL Tank Farm (HAS-69)

Confirmed fuel spills have occurred during the operation of the POL Tank Farm. Since Suffolk County Airport and the Base both operate storage facilities in very close proximity to one another, the exact source of some of the spilled fuel is in dispute. Two spills are reported to be attributable to the ANG facilities and both involved the loss of JP-4. The first of these spills occurred in the early 1970's, from Tank No. 5 and may have involved a very large loss of fuel, perhaps in excess of 10,000 gallons. Reliable estimates of the quantity involved are nonexistent. No recovery was accomplished, and the entire spill is assumed to have been lost to sorption. The second spill occurred in 1978 and involved the loss of 20 gallons of fuel. This spill occurred because of a defective O-ring at a nozzle, and the fuel spilled onto the asphalt. The fire department foamed the area down, and no recovery was accomplished.

Subsequent sampling and analysis at the POL Tank Farm, conducted by both the ANG and the State of New York, has confirmed soil and groundwater contamination at this site. Characterization studies performed on contaminated groundwater samples by the USAF Occupational and Environmental Health Laboratory and Cambridge Analytical Associates, conclude that the primary constituent of this contamination is commercially used jet A fuel.

Since the Base owns and operates part of the POL Tank Farm facility (2 underground 25,000-gallon tanks containing #2 fuel oil, 1 aboveground 157,000-gallon cone roof tank containing JP-4 fuel, and 1 aboveground 387,000-gallon floating roof tank containing JP-4 fuel), and because there is public knowledge of soil and groundwater contamination at this site, a HAS has been determined and further investigation of this site is recommended.

C. CRITICAL HABITATS/ENDANGERED OR THREATENED SPECIES

Based on a review of the Atlantic Coast Ecological Inventory for New York, New York - Connecticut - New Jersey, prepared by the U.S. Fish and Wildlife Service, and telephone conversations with personnel from the the local office of the U.S. Fish and Wildlife Service, no endangered or threatened species of flora of fauna were identified within an one mile radius of the Base. No critical habitats, wetlands or wilderness area are known to exist within one mile of the Base. However, the Quoque Waterfowl Refuge is located within one mile of the POL Tank Farm.

D. OTHER PERTINENT FACTS

- Sewage treatment at the Base consists of a number of cesspools and drywells. However, due to lack of any hard evidence that could pinpoint any contaminated cesspools or drywells, it was decided that none of them merit a HAS or further IRP evaluation.
- Waste oils or other shop wastes have not been reported to be used for road dust control.
- There have never been any reported leaks of PCB-contaminated oils from electrical transformers. Some older transformers have been retired and shipped offbase for disposal.
- There has not been any POL tank sludge buried on the Base.
- There have been no aircraft crashes on the Base that could have resulted in loss of fuel to the environment.
- There are no active or inactive landfills on the Base.
- No radioactive wastes have been disposed of on the Base.
- Base refuse has always been shipped offbase.
- There are no ordnance disposal sites on the Base.
- There has not been extensive use or storage of any pesticides or fertilizers on the Base.

V. CONCLUSIONS

- Information obtained through interviews with nine Base personnel, review of Base records, and field observations have resulted in the identification of six potentially contaminated disposal/spill sites.

- The six sites have been scored using the Air Force HARM. Three of the sites, Site Nos. 2, 3, and 5, exhibit visual evidence of contamination.

- Test results have shown contamination at the POL Tank Farm area.

- Because of the permeability of the soils and occurrence of groundwater at depths of 15 to 35 feet below surface at Suffolk County Airport, liquid contaminants released to the environment have potential for migration.

VI. RECOMMENDATIONS

There is potential for contaminant migration at the six identified potentially contaminated sites; therefore, initial stages of the IRP Phase II/IVA are recommended. The purpose of the site-specific recommendations made in this report is to confirm or refute the presence of contamination at the sites. If confirmation is made, subsequent investigation via Phase II/IVA efforts should be accomplished in order to fully characterize the extent of any soil and groundwater contamination. Requirements for those efforts will be outlined in the Phase II/IVA Statement of Work (SOW), if they are found to be needed. Site-specific recommendations for confirmation/refutation of contamination follows.

Site No. 1 - AVGAS Spill Site

It is recommended that monitoring wells be installed at this site in order to confirm or refute the presence of AVGAS in the soil and groundwater. The wells should be placed downgradient (south) of the site. Soil and groundwater samples collected from the wells should be analyzed for oil, grease, and volatile organic aromatics (VOA).

Site No. 2 - Former Hazardous Waste Storage Area

During the site inspection, it was noted that this site exhibited discolored, oily-appearing soil. In order to confirm that the discoloration is directly attributable to contamination from shop wastes stored there, it is recommended that groundwater and soil samples be collected from a well placed in the spot most contaminated, as determined by visual inspection. Since a variety of shop wastes have been stored at this site, it is suggested that the samples be analyzed for VOA, oil and grease, total organic carbon (TOC), total organic halogens (TOX) and heavy metals.

Site No. 3 - Current Waste Storage Facility

As is the case with Site No. 2, during the site inspection, it was noted that contamination of the soil at this site was visually evident. Recommendations for this site are the same as for Site No. 2, groundwater and soil samples should be collected at the most contaminated spot in the building, as determined by visual inspection. Samples should be analyzed for VOA, oil and grease, TOC, TOX, and heavy metals.

Site No. 4 - Aircraft Refueling Apron

This site exhibited no apparent environmental stress during the site visit. Therefore, it is recommended that groundwater and soil samples be collected where it is thought that contamination is most likely to exist. Soil and groundwater samples should be analyzed for oil and grease, and VOA.

Site No. 5 - Southwest Storm Drainage Ditch

This site represents a junction of many potential sources of contamination migrating offbase. It is recommended that monitoring wells be installed in the ditch as close as possible to the Base boundary. Groundwater and soil samples should be collected and analyzed for oil and grease, VOA, TOC and heavy metals.

Site No. 6 - POL Tank Farm

Subsequent IRP investigations should be undertaken to determine the presence of a contaminant plume, and if confirmed, the extent of migration.

GLOSSARY

AQUIFER - A geologic formation, or group of formations, that contains sufficient saturated permeable material to conduct groundwater and to yield economically significant quantities of groundwater to wells and springs.

CONTAMINANT - As defined by Section 101(f)(33) of SARA shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction), or physical deformation in such organisms or their offspring; except that the term "contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under:

(a) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act,

(b) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of this Act,

(c) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress),

(d) any toxic pollutant listed under Section 307(a) of the Federal Water Pollution Control Act,

(e) any hazardous air pollutant listed under Section 112 of the Clean Air Act, and

(f) any imminently hazardous chemical substance or mixture with respect to which the administrator has taken action pursuant to Section 7 of the Toxic Substance Control Act;

and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

CRITICAL HABITAT - The native environment of an animal of plant which, due either to the uniqueness of the organism or the sensitivity of the environment, is susceptible to adverse reactions to environmental changes such as may be induced by chemical contaminants.

DOWNGRADIENT - A direction that is hydraulically downslope, i.e., the direction in which water flows.

ENDANGERED SPECIES - Wildlife species that are designated as endangered by the U.S. Fish and Wildlife Service.

GROUNDWATER - Refers to the subsurface water that occcurs beneath the water table in soils and geologic formations that are fully saturated.

HARM - Hazard Assessment Rating Methodology - A system adopted and used by the United States Air Force to develop and maintain a priority listing of potentially contaminated sites on installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981)

HAS - Hazard Assessment Score - The score developed by utilizing the Hazardous Assessment Rating Methodology (HARM).

HAZARDOUS MATERIAL - Any substance or mixture of substances having properties capable of producing adverse effects on the health and safety of the human being. Specific regulatory definitions also found in OSHA and DOT rules.

HAZARDOUS WASTE - A solid or liquid waste that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may

a. cause, or significantly contribute to, an increase in mortality or an increase ir serious irreversible or incapacitating reversible illness, or

b. pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

MIGRATION (Contaminant) - The movement of contaminants through pathways (groundwater, surface water, soil, and air).

PERMEABILITY - The capacity of a porous rock, sediment, or soil for transmitting a fluid without impairment of the structure of the medium; it is a measure of the relative ease of fluid flow under unequal pressure.

SOIL PERMEABILITY - The quality of the soil that enables water to move downward through the profile. Permeability is measured as to the number of inches per hour that moves downward through the saturated soil.

Terms describing permeability are:

Very Slow	-	less than 0.06 inches per hour (less than 4.2×10^{-5} cm/sec)
Slow	-	0.06 to 0.20 inches per hour (4.23×10^{-5} to 1.4×10^{-4} cm/sec)
Moderately Slow	-	0.2 to 0.6 inches per hour (1.4×10^{-4} cm/sec)
Moderate	-	0.6 to 2.0 inches per hour ($4.2 \times 10^{-4} \times 10^{-3}$ cm/sec)
Moderately Rapid	-	2.0 to 6.0 inches per hour (1.4×10^{-3} to 4.2×10^{-3} cm/sec)
Rapid	-	6.0 to 20 inches per hour (4.2×10^{-3} to 1.4×10^{-2} cm/sec)
Very Rapid	-	more than 20 inches per hour (more than 1.4×10^{-2} cm/sec)

(Reference: U.S.D.A. Soil Survey)

SURFACE WATER - All water exposed at the ground surface, including streams, rivers, ponds, and lakes.

THREATENED SPECIES - Wildlife species that are designated as threatened by the U.S. Fish and Wildlife Service.

TOPOGRAPHY - The general conformation of a land surface, including its relief and the position of its natural and manmade features.

UPGRADIENT - A direction that is hydraulically upslope.

WATER TABLE - The upper limit of the portion of the ground wholly saturated with water.

WETLANDS - An area subject to permanent or prolonged inundation of saturation that exhibits plant communities adopted to this environment.

WILDERNESS AREA - An area unaffected by anthropogenic activities and deemed worthy of special attention to maintain its natural condition.

BIBLIOGRAPHY

1. Warner, J.W., Jr., Hannon, W.E., Laundry, R.J., et. al., Soil Survey of Suffolk County, New York, United States Department of Agriculture, Soil Conservation Service, in Cooperation With Cornell Agricultural Experiment Station, U.S. Government Printing Office, 101 pp., 1975.

2. USAF Occupational and Environmental Health Laboratory, Characterization and Evaluation of JP-4, Jet A and Mixtures of These Fuels in Environmental Water Samples, Suffolk County Airport, NY, USAF OEHL Report 84-148SZ111CFC, 44 pp., 1984.

3. Drew, S.R., Final Report, for fuels characterization at Suffolk County Airport, Westhampton Beach, NY, Cambridge Analytical Associates, 7 pp., 1985.

4. 106th Aerospace Rescue and Recovery Group, Spill Prevention Control and Countermeasures Plan (SPCC), New York ANG, 1985

5. Federal Register (FR 312240, 16 July 1982.

6. Federal Register (FR 31235), 16 July 1982.

7. Well log data provided by Soil Exploration Corporation.

8. Federal Emergency Management Agency, Flood Insurance Rate Map, Village of Westhampton Beach, Suffolk County, New York, Panel 1 of 3, 2 May 1983.

9. U.S. Fish and Wildlife Service, 1:250000 - Scale Map of Atlantic Coast Ecological Inventory, New York, NY - Connecticut, NJ, 1980.

Appendix A
Resumes of HMTC Seach Team Members

TIMOTHY N. GARDNER

Environmental Scientist

EDUCATION

M.A., Environmental Biology, Hood College
B.S., Forestry/Resource Management, West Virginia University

EXPERIENCE

Mr. Gardner has five years of technical experience in environmental control and research, with emphasis on risk assessment, chemical safety, radiation safety, hazardous waste management (chemical and radiologic), and activated carbon filtration research. His past responsibilities include site risk assessment, chemical and radioactive waste pickup and storage for disposal at a large cancer research facility, and chemical and radioactive spill control, as well as safety surveys and technical assistance in activated carbon desorption research.

EMPLOYMENT

Dynamac Corporation (1984-Present): Staff Scientist

At Dynamac, Mr. Gardner's responsibilities include site surveys and records searches for the Phase I portion of the Installation Restoration Program (IRP) for various Air National Guard Bases. Efforts include risk assessment, site prioritization, and remedial action recommendations. He has also been a contributing author for a closure-post closure plan for a hazardous waste landfill at Clovis AFB, plans and specifications for the removal of asbestos at several Air Force White Alice sites in Alaska, and the update and revision of a DLA regulation for "Disposal of Unwanted Radioactive Material."

NCI-Frederick Cancer Research Facility (1981-1984): Lab Technician

Mr. Gardner worked in radiation and chemical safety as well as environmental research. His responsibilities included monitoring personal and environmental air quality at work areas where free iodinations occurred, monitoring work areas and equipment for isotope contamination, periodic surveys to monitor compliance with NRC safety regulations, isotope inventory control, transfer of isotopes between licenses, and periodic calibration and maintenance of survey instruments. He was also responsible for radioactive and chemical waste pickup and storage for disposal, and served as an advisor for safety-related matters pertinent to radiation and radioactive waste, chemical safety, and industrial hygiene. In the environmental research division, he was involved in activated carbon desorption studies involving the use of analytic laboratory equipment.

PROFESSIONAL AFFILIATIONS

American Tree Farm Association
Hardwood Research Council
West Virginia Forestry Association

Appendix B
Interviewee Information

New York Air National Guard
Suffolk County Air National Guard Base
Westhampton Beach, New York

INTERVIEW INFORMATION

Interviewee Number	Primary Duty Assignment	Years Associated With Suffolk County ANGB
1	Fire Department	14
2	Pneudraulics Shop	15
3	Battery Shop	15
4	Corrosion Control	3
5	Photo Laboratory	15
6	Motor Pool	14
7	TAC Clinic	2
8	Civil Engineering	5
9	Environmental (HVAC) Shop	16

Appendix C
Outside Agency Contact List

OUTSIDE AGENCY CONTACT LIST

1. Federal Emergency Management Agency
   Flood Map Distribution Center
   6930 (A-F) San Tomas Road
   Baltimore, Maryland 21227

2. Suffolk County Soil and Water Conservation District
   127 East Main Street
   Riverhead, New York 11901

3. United States Fish and Wildlife Service
   Brookhaven National Lab
   Building 179
   Upton, New York 11973

4. United States Geological Survey
   12201 Sunrise Valley Drive
   Reston, Virginia 22092

Appendix D
USAF Hazard Assessment Rating Methodology

USAF HAZARD ASSESSMENT RATING METHODOLOGY

The Department of Defense (DoD) has established a comprehensive program to identify, evaluate, and control problems associated with past disposal practices at DoD facilities. One of the actions required under this program is to:

> develop and maintain a priority listing of contaminated installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981).

Accordingly, the United States Air Force (USAF) has sought to establish a system to set priorities for taking further actions at sites based upon information gathered during the Records Search phase of its Installation Restoration Program (IRP).

PURPOSE

The purpose of the site rating model is to provide a relative ranking of sites of suspected contamination from hazardous substances. This model will assist the Air National Guard in setting priorities for follow-on site investigations.

This rating system is used only after it has been determined that (1) potential for contamination exists (hazardous wastes present in sufficient quantity), and (2) potential for migration exists. A site can be deleted from consideration for rating on either basis.

DESCRIPTION OF MODEL

Like the other hazardous waste site ranking models, the U.S. Air Force's site rating model uses a scoring system to rank sites for priority attention. However, in developing this model, the designers incorporated some special features to meet specific DoD program needs.

The model uses data readily obtained during the Records Search portion (Phase I) of the IRP. Scoring judgment and computations are easily made. In assessing the hazards at a given site, the model develops a score based on the most likely routes of contamination and the worst hazards at the site. Sites are given low scores only if there are clearly no hazards. This approach meshes well with the policy for evaluating and setting restrictions on excess DoD properties.

Site scores are developed using the appropriate ranking factors according to the method presented in the flow chart (Figure 1 of this report). The site rating form and the rating factor guideline are provided at the end of this appendix.

As with the previous model, this model considers four aspects of the hazard posed by a specific site: possible receptors of the contamination, the waste and its characteristics, the potential pathways for contamination migration, and any efforts that were made to contain the wastes resulting from a spill.

The receptors category rating is based on four rating factors: the potential for human exposure to the site, the potential for human ingestion of contaminants should underlying aquifers be polluted, the current and anticipated uses of the surrounding area, and the potential for adverse effects upon important biological resources and fragile natural settings. The potential for human exposure is evaluated on the basis of the total population within 1,000 feet of the site, and the distance between the site and the base boundary. The potential for human ingestion of contaminants is based on the distance between the site and the nearest well, the groundwater use of the uppermost aquifer, and population served by the groundwater supply within 3 miles of the site. The uses of the surrounding area are determined by the zoning within a 1-mile radius. Determination of whether or not critical environments exist within a 1-mile radius of the site predicts the potential for

adverse effects from the site upon important biological resources and fragile natural settings. Each rating factor is numerically evaluated (0-3) and increased by a multiplier. The maximum possible score is also computed. The factor score and maximum possible scores are totaled, and the receptors subscore computed as follows: receptors subscore = (100 x factor score subtotal/ maximum score subtotal).

The waste characteristics category is scored in three steps. First, a point rating is assigned based on an assessment of the waste quantity and the hazard (worst case) associated with the site. The level of confidence in the information is also factored into the assessment. Next, the score is multiplied by a waste persistence factor, which acts to reduce the score if the waste is not very persistent. Finally, the score is further modified by the physical state of the waste. Liquid wastes receive the maximum score, while scores for sludges and solids are reduced.

The pathways category rating is based on evidence of contaminant migration or an evaluation of the highest potential (worst case) for contaminant migration along one of three pathways: surface-water migration, flooding, and groundwater migration. If evidence of contaminant migration exists, the category is given a subscore of 80 to 100 points. For indirect evidence, 80 points are assigned, and for direct evidence, 100 points are assigned. If no evidence is found, the highest score among the three possible routes is used. The three pathways are evaluated and the highest score among all four of the potential scores is used.

The scores for each of the three categories are added together and normalized to a maximum possible score of 100. Then the waste management practice category is scored. Scores for sites with no containment are not reduced. Scores for sites with limited containment can be reduced by 5 percent. If a site is contained and well managed, its score can be reduced by 90 percent. The final site score is calculated by applying the waste management practices category factory to the sum of the scores for the other three categories.

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE _____

LOCATION _____

DATE OF OPERATION OR OCCURRENCE _____

OWNER/OPERATOR _____

COMMENTS/DESCRIPTION _____

SITE RATED BY _____

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site		4		
B. Distance to nearest well		10		
C. Land use/zoning within 1 mile radius		3		
D. Distance to installation boundary		6		
E. Critical environments within 1 mile radius of site		10		
F. Water quality of nearest surface water body		6		
G. Ground water use of uppermost aquifer		9		
H. Population served by surface water supply within 3 miles downstream of site		6		
I. Population served by ground-water supply within 3 miles of site		6		
		Subtotals	_____	_____

Receptors subscore (100 X factor score subtotal/maximum score subtotal) _____

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) _____
2. Confidence level (C = confirmed, S = suspected) _____
3. Hazard rating (H = high, M = medium, L = low) _____

Factor Subscore A (from 20 to 100 based on factor score matrix) _____

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

_____ X _____ = _____

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

_____ X _____ = _____

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		
Net precipitation		6		
Surface erosion		8		
Surface permeability		6		
Rainfall intensity		8		
		Subtotals	_____	_____

Subscore (100 X factor score subtotal/maximum score subtotal) _____

2. Flooding

Flooding		1		

Subscore (100 X factor score/3) _____

3. Ground water migration

Depth to ground water		8		
Net precipitation		6		
Soil permeability		8		
Subsurface flows		8		
Direct access to ground water		8		
		Subtotals	_____	_____

Subscore (100 X factor score subtotal/maximum score subtotal) _____

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore _____

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors _____
Waste Characteristics _____
Pathways _____

Total _____ divided by 3 = _____
Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

_____ X _____ = ☐

1. RECEPTORS CATEGORY

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
A. Population within 1,000 feet (includes on-base facilities)	0	1-25	26-100	Greater than 100	4
B. Distance to nearest water well	Greater than 3 miles	1 to 3 miles	3,001 feet to 1 mile	0 to 3,000 feet	10
C. Land Use/Zoning (within 1-mile radius)	Completely remote (zoning not applicable)	Agricultural	Commercial or Industrial	Residential	3
D. Distance to installation boundary	Greater than 2 miles	1 to 2 miles	1,001 feet to 1 mile	0 to 1,000 feet	6
E. Critical environments (within 1-mile radius)	Not a critical environment	Natural areas	Pristine natural areas; minor wetlands; preserved areas; presence of economically important natural resources susceptible to contamination	Major habitat of an endangered or threatened species; presence of recharge area; major wetlands	10
F. Water quality/use designation of nearest surface water body	Agricultural or Industrial use	Recreation, propagation and management of fish and wildlife	Shellfish propagation and harvesting	Potable water supplies	6
G. Ground-water use of uppermost aquifer	Not used, other sources readily available	Commercial, industrial, or irrigation, very limited other water sources	Drinking water, municipal water available	Drinking water, no municipal water available; commercial, industrial, or irrigation, no other water source available	9
H. Population served by surface water supplies within 3 miles downstream of site	0	1-15	51-1,000	Greater than 1,000	6
I. Population served by aquifer supplies within 3 miles of site	0	1-50	51-1,000	Greater than 1,000	6

II. WASTE CHARACTERISTICS

A-1 Hazardous Waste Quantity

S = Small quantity (5 tons or 20 drums of liquid)
M = Moderate quantity (5 to 20 tons or 21 to 85 drums of liquid)
L = Large quantity (20 tons or 85 drums of liquid)

A-2 Confidence Level of Information

C = Confirmed confidence level (minimum criteria below)

- o Verbal reports from interviewer (at least 2) or written information from the records
- o Knowledge of types and quantities of wastes generated by shops and other areas on base

S = Suspected confidence level

- o No verbal reports or conflicting verbal reports and no written information from the records
- o Logic based on a knowledge of the types and quantities of hazardous wastes generated at the base, and a history of past waste disposal practices indicate that these wastes were disposed of at a site

A-3 Hazard Rating

Rating Factors	Rating Scale Levels			
	0	1	2	3
Toxicity	Sax's Level 0	Sax's Level 1	Sax's Level 2	Sax's Level 3
Ignitability	Flash point greater than 200°F	Flash point at 140°F to 200°F	Flash point at 80°F to 140°F	Flash point less than 80°F
Radioactivity	At or below background levels	1 to 3 times background levels	3 to 5 times background levels	Over 5 times background levels

Use the highest individual rating based on toxicity, ignitability and radioactivity and determine the hazard rating.

Hazard Rating	Points
High (H)	3
Medium (H)	2
Low (L)	1

II. WASTE CHARACTERISTICS--Continued

Waste Characteristics Matrix

Point Rating	Hazardous Waste Quantity	Confidence Level of Information	Hazard Rating
100	L	C	H
	L	S	H
80	M	C	H
	L	S	H
70	S	C	H
60	M	C	M
	L	S	M
	L	C	L
50	M	S	H
	S	C	M
	S	S	H
	M	S	M
40	M	C	L
	L	S	L
	S	C	L
30	M	S	L
	S	S	M
20	S	S	L

Notes:
For a site with more than one hazardous waste, the waste quantities may be added using the following rules:

Confidence Level
- o Confirmed confidence levels (C) can be added.
- o Suspected confidence levels (S) can be added.
- o Confirmed confidence levels cannot be added with suspected confidence levels.

Waste Hazard Rating
- o Wastes with the same hazard rating can be added.
- o Wastes with different hazard ratings can only be added in a downgrade mode, e.g., MCH + SCH = LCH if the total quantity is greater than 20 tons.

Example: Several wastes may be present at a site, each having an MCM designation (60 points). By adding the quantities of each waste, the designation may change to LCH (80 points). In this case, the correct point rating for the waste is 80.

B. Persistence Multiplier for Point Rating

Persistence Criteria	Multiply Point Rating From Part A by the Following
Metals, polycyclic compounds, and halogenated hydrocarbons	1.0
Substituted and other ring compounds	0.9
Straight chain hydrocarbons	0.8
Easily biodegradable compounds	0.4

C. Physical State Multiplier

Physical State	Multiply Point Total From Parts A and B by the Following
Liquid	1.0
Sludge	0.75
Solid	0.50

III. PATHWAYS CATEGORY

A. Evidence of Contamination

Direct evidence is obtained from laboratory analyses of hazardous contaminants present above natural background levels in surface water, ground water, or air. Evidence should confirm that the source of contamination is the site being evaluated.

Indirect evidence might be from visual observation (i.e., leachate), vegetation stress, sludge deposits, presence of taste and odors in drinking water, or reported discharges that cannot be directly confirmed as resulting from the site, but the site is greatly suspected of being a source of contamination.

B-1 Potential for Surface Water Contamination

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Distance to nearest surface water (includes drainage ditches and storm sewers)	Greater than 1 mile	2,001 feet to 1 mile	501 feet to 2,000 feet	0 to 500 feet	8
Net precipitation	less than -10 inches	-10 to +5 inches	+5 to +20 inches	Greater than +20 inches	6
Surface erosion	None	Slight	Moderate	Severe	8
Surface permeability	0% to 15% clay ($>10^{-2}$ cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	Greater than 50% clay ($>10^{-6}$ cm/sec)	6
Rainfall intensity based on 1-year 24-hour rainfall (Thunderstorms)	<1.0 inch 0-5 0	1.0 to 2.0 inches 6-35 30	2.1 to 3.0 inches 36-49 60	>3.0 inches >50 100	8

B-2 Potential for Flooding

Floodplain	Beyond 100-year floodplain	In 100-year floodplain	In 10-year floodplain	Floods annually	1

B-3 Potential for Ground Water Contamination

Depth to ground water	Greater than 500 feet	50 to 500 feet	11 to 50 feet	0 to 10 feet	8
Net precipitation	less than -10 inches	-10 to +5 inches	+5 to + 20 inches	Greater than +20 inches	6
Soil permeability	Greater than 50% clay ($>10^{-6}$ cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	0% to 15% clay ($<10^{-2}$ cm/sec)	8

B-3 Potential for Ground-Water Contamination--Continued

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Subsurface flows	Bottom of site greater than 5 feet above high ground-water level	Bottom of site occasionally submerged	Bottom of site frequently submerged	Bottom of site located below mean ground-water level	8
Direct access to ground water (through faults, fractures, faulty well casings, subsidence, fissures, etc.)	No evidence of risk	Low risk	Moderate risk	High risk	8

IV. WASTE MANAGEMENT PRACTICES CATEGORY

A. This category adjusts the total risk as determined from the receptors, pathways, and waste characteristics categories for waste management practices and engineering controls designed to reduce this risk. The total risk is determined by first averaging the receptors, pathways, and waste characteristics subscores.

B. Waste Management Practices Factor

The following multipliers are then applied to the total risk points (from A):

Waste Management Practice	Multiplier
No containment	1.0
Limited containment	0.95
Fully contained and in full compliance	0.10

Guidelines for fully contained:

Landfills:

- o Clay cap or other impermeable cover
- o Leachate collection system
- o Liners in good condition
- o Adequate monitoring wells

Surface Impoundments:

- o Liners in good condition
- o Sound dikes and adequate freeboard
- o Adequate monitoring wells

Spills:

- o Quick spill cleanup action taken
- o Contaminated soil removed
- o Soil and/or water samples confirm total cleanup of the spill

Fire Protection Training Areas:

- o Concrete surface and berms
- o Oil/water separator for pretreatment of runoff
- o Effluent from oil/water separator to treatment plant

General Note: If data are not available or known to be complete the factor ratings under items I-A through I, III-B-1, or III-6-3, then leave blank for calculation of factor score and maximum possible score.

CNR122

Appendix E
Site Hazardous Assessment Rating Forms

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 1 - AVGAS Spill Site

LOCATION New York Air National Guard, Suffolk County ANG Base, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Approximately 1965

OWNER/OPERATOR 106th Aerospace Rescue and Recovery Group

COMMENTS/DESCRIPTION Inadvertent Spill of AVGAS onto parking lot - no recovery

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 80

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

80 X 1.0 = 80

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

80 X 1.0 = 80

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	2	6	12	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	2	8	16	24
		Subtotals	58	108

Subscore (100 X factor score subtotal/maximum score subtotal) 54

2. Flooding | 0 | 1 | 0 | 3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	3	8	24	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	60	114

Subscore (100 X factor score subtotal/maximum score subtotal) 53

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 54

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	80
Pathways	54

Total 162 divided by 3 = 54 Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

54 X 1.0 = 54

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 2 - Former Hazardous Waste Storage Area

LOCATION New York Air National Guard, Suffolk County ANG Base, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Up to 1984

OWNER/OPERATOR 106th Aerospace Rescue and Recovery Group

COMMENTS/DESCRIPTION Open area where shop wastes were stored

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	1	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

50 X 1.0 = 50

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

50 X 1.0 = 50

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	2	6	12	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	2	8	16	24
		Subtotals	58	108

Subscore (100 X factor score subtotal/maximum score subtotal) 54

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	3	8	24	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	2	8	16	24
		Subtotals	76	114

Subscore (100 X factor score subtotal/maximum score subtotal) 67

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 67

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	50
Pathways	67
Total 145 divided by 3 =	48
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

48 X 1.0 = 48

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 3 - Current Waste Storage Facility

LOCATION New York Air National Guard, Suffolk County ANG Base, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Various - Since early 1980's

OWNER/OPERATOR 106th Aerospace Rescue and Recovery Group

COMMENTS/DESCRIPTION Building not secure - disculored gravel/soil

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

50 X 1.0 = 50

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

50 X 1.0 = 50

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	1	8	8	24
Net precipitation	2	6	12	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	2	8	16	24
		Subtotals	42	108
Subscore (100 X factor score subtotal/maximum score subtotal)				39

2. Flooding

Flooding	0	1	0	3
Subscore (100 X factor score/3)				0

3. Ground water migration

Depth to ground water	3	8	24	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	60	114
Subscore (100 X factor score subtotal/maximum score subtotal)				53

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 53

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	50
Pathways	53
Total 131 divided by 3 =	44
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

44 X 1.0 = 44

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 4 - Aircraft Refueling Apron

LOCATION New York Air National Guard, Suffolk County ANG Base, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Intermittent spills over years.

OWNER/OPERATOR 106th Aerospace Rescue and Recovery Group

COMMENTS/DESCRIPTION 50 gallons/year hydraulic oil, 30 gallons/year trichloroethylene

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

50 X 1.0 = 50

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

50 X 1.0 = 50

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	2	6	12	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	2	8	16	24
		Subtotals	58	108

Subscore (100 X factor score subtotal/maximum score subtotal) 54

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	3	8	24	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	2	8	16	24
		Subtotals	76	114

Subscore (100 X factor score subtotal/maximum score subtotal) 67

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 67

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	50
Pathways	67
Total 145 divided by 3 =	48
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

48 X 1.0 = 48

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 5 - Southwest Storm Drainage Ditch

LOCATION New York Air National Guard, Suffolk County ANG Base, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Intermittent over the Years

OWNER/OPERATOR 106th Aerospace Rescue and Recovery Group

COMMENTS/DESCRIPTION Storm drainage from installation collects here

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 30

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

30 X 1.0 = 30

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

30 X 1.0 = 30

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	2	6	12	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	2	8	16	24
		Subtotals	58	108

Subscore (100 X factor score subtotal/maximum score subtotal) 54

2. Flooding

	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	3	8	24	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	3	8	24	24
		Subtotals	84	114

Subscore (100 X factor score subtotal/maximum score subtotal) 74

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 74

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	30
Pathways	74
Total 132 divided by 3 =	44
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

44 x 1.0 = 44

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 6 - POL Tank Farm

LOCATION At south-central boundary of Suffolk County Airport, Westhampton Beach, New York

DATE OF OPERATION OR OCCURRENCE Possible spill in early 70's - confirmed spill in 1978

OWNER/OPERATOR Suffolk County and ANG

COMMENTS/DESCRIPTION Confirmed POL contamination at site

SITE RATED BY HMTC

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	2	4	8	12
B. Distance to nearest well	0	10	0	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	1	10	10	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	0	9	0	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	51	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 28

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 80

B. Apply persistance factor
Factor Subscore A X Persistence Factor = Subscore B

80 X 1.0 = 80

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

80 X 1.0 = 80

HAZARDOUS ASSESSMENT RATING FORM

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 100

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		24
Net precipitation		6		18
Surface erosion		8		24
Surface permeability		6		18
Rainfall intensity		8		24
		Subtotals	____	108

Subscore (100 X factor score subtotal/maximum score subtotal) ____

2. Flooding

Flooding		1		3

Subscore (100 X factor score/3) ____

3. Ground water migration

Depth to ground water		8		24
Net precipitation		6		18
Soil permeability		8		24
Subsurface flows		8		24
Direct access to ground water		8		24
		Subtotals	____	114

Subscore (100 X factor score subtotal/maximum score subtotal) ____

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 100

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	28
Waste Characteristics	80
Pathways	100
Total 208 divided by 3 =	69

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

69 x 1.0 = 69

END

DATE

FILMED

8-88

DTIC